TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

No Quals
CR 8/26/09

ANALYTICAL REPORT

FILE COPY

Job Number: 360-22595-1

Job Description: Slurry Wall / Cap

CHECKED FOR COMPLETENESS OF PARAMETERS ORDERED BY:

For:
Olin Corporation
3855 North Ocoee Street
Suite 200
Cleveland, TN 37312-4441

Attention: Mr. Steven Morrow

Approved for release.
Joe Chimi
Report Production Representative
5/29/09 10:49 AM

Designee for
Becky C Mason
Project Manager II
becky.mason@testamericainc.com
05/29/2009

The test results in this report meet all NELAP requirements for accredited parameters. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced except in full, and with written approval from the laboratory.
TestAmerica Westfield Certifications and Approvals: MADEP MA014, RIDOH57, CTDPH 0494, VT DECWSD, NH DES 2539, NELAP FL E87912 TOX, NELAP NJ MA008 TOX, NELAP NY 10843, NY DOH 10843.

Field sampling is performed under SOPs WE-FLD-001 and WE-FLD-002

TestAmerica Laboratories, Inc.
TestAmerica Westfield Westfield Executive Park, 53 Southampton Road, Westfield, MA 01085
Tel (413) 572-4000 Fax (413) 572-3707 www.testamericainc.com

ACCREDITED IN ACCORDANCE WITH nelac

Table of Contents

MADEP MCP Analytical Method Report Certification Form

Laboratory Name:	**TestAmerica Westfield**	Project #:	**360-22595-1**
Project Location:	**Slurry Wall / Cap**	MADEP RTN[1]:	

This form provides certifications for the following data set:[list Laboratory Sample ID Number(s)]
360-22595-(1-3)

Sample Matrices: **Groundwater** Soil/Sediment Drinking Water Other:

MCP SW-846 Methods Used	8260B( )	8151A ( )	8330 ( )	6010B (**x**)	7470A/1A ( )	Other ( )
	8270C( )	8081A ( )	VPH ( )	6020 ( )	9014M[2]/9012 ( )	
As specified in MADEP Compendium of Analytical Methods. (check all that apply)	8082 ( )	8021B ( )	EPH ( )	7000 S[3]( )	7196A ( )	

1 List Release Tracking Number (RTN), if known
2 M - SW-846 Method 9014 or MADEP Physiologically Available Cyanide (PAC) Method
3 S - SW-846 Methods 7000 Series List individual method and analyte.

An affirmative response to questions A, B, C and D is required for "Presumptive Certainty" status

A	Were all samples received by the laboratory in a condition consistent with that described on the Chain-of-Custody documentation for the data set?	Yes √		No[1]
B	Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	Yes √		No[1]
C	Does the analytical data included in this report meet all the requirements for "Presumptive Certainty", as described in Section 2.0 (a), (b), (c) and (d) of the MADEP document CAM VII A, " Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes √	N/A	No[1]
D	**VPH and EPH methods only:** Was the VPH or EPH Method conducted without significant modifications (see Section 11.3 of respective Methods)?	Yes	N/A √	No[1]

A response to questions E and F below is required for "Presumptive Certainty" status

E	Were all QC performance standards and recommendations for the specified methods achieved?	Yes √		No[1]
F	Were results for all analyte-list compounds/elements for the specified method(s) reported?	Yes	N/A	No[1] √

[1] All Negative responses must be addressed in an attached Environmental Laboratory case narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:  **Position:** Laboratory Director

Printed Name: Steven C. Hartmann **Date:** 5/29/09 10:39

The certification form has been electronically signed and approved. CAM VII A, Rev 3.2 April-04

TestAmerica THE LEADER IN ENVIRONMENTAL TESTING

MADEP MA014
NY DOH 10843
RI DOH 57
CT DPH 0494
VT DECWSD

NELAP FL E87912 TOX
NELAP NJ MA008 TOX
NELAP NY 10843
NH DES 253901-A

TestAmerica Westfield
53 Southampton Rd,
Westfield, MA 01085
Tel:(413)572-4000
Fax:(413)572-3707

MADEP MCP Analytical Method Report Certification Form

Laboratory Name:	**TestAmerica Westfield**	Project #:	**360-22595-1**
Project Location:	**Slurry Wall / Cap**	MADEP RTN[1]:	

This form provides certifications for the following data set:[list Laboratory Sample ID Number(s)]
360-22595-(1-3)

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MCP SW-846 Methods Used	8260B( )	8151A ( )	8330 ( )	6010B ( )	7470A/1A ( )	Other (**x**)
	8270C( )	8081A ( )	VPH ( )	6020 ( )	9014M[2]/9012 ( )	
As specified in MADEP Compendium of Analytical Methods. (check all that apply)	8082 ( )	8021B ( )	EPH ( )	7000 S[3]( )	7196A ( )	

1 List Release Tracking Number (RTN), if known
2 M - SW-846 Method 9014 or MADEP Physiologically Available Cyanide (PAC) Method
3 S - SW-846 Methods 7000 Series List individual method and analyte.

An affirmative response to questions A, B, C and D is required for "Presumptive Certainty" status

A	Were all samples received by the laboratory in a condition consistent with that described on the Chain-of-Custody documentation for the data set?	Yes √		No[1]
B	Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	Yes √		No[1]
C	Does the analytical data included in this report meet all the requirements for "Presumptive Certainty", as described in Section 2.0 (a), (b), (c) and (d) of the MADEP document CAM VII A, " Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes	N/A √	No[1]
D	**VPH and EPH methods only:** Was the VPH or EPH Method conducted without significant modifications (see Section 11.3 of respective Methods)?	Yes	N/A √	No[1]

A response to questions E and F below is required for "Presumptive Certainty" status

E	Were all QC performance standards and recommendations for the specified methods achieved?	Yes √		No[1]
F	Were results for all analyte-list compounds/elements for the specified method(s) reported?	Yes	N/A √	No[1]

[1] All Negative responses must be addressed in an attached Environmental Laboratory case narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:  **Position:** Laboratory Director

Printed Name: Steven C. Hartmann **Date:** 5/29/09 10:39

The certification form has been electronically signed and approved. CAM VII A, Rev 3.2 April-04

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NY DOH 10843
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NH DES 253901-A

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CASE NARRATIVE

Client: Olin Corporation

Project: Slurry Wall / Cap

Report Number: 360-22595-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues as stipulated in the MCP reporting requirements.

In order to facilitate report review, a separate MCP Analytical Method Report Certification Form is included for each method requested.

It should be noted that samples with elevated Reporting Limits (RLs) as a result of a dilution may not be able to satisfy "MCP program" reporting limits in some cases if the "adjusted" RL is greater than the applicable MCP standards or criterion to which the concentration is being compared. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes which exceed the calibration range.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

The samples were received on 05/13/2009; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.4ºC.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC and MADEP standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

MCP regulatory standard criteria were not specified for this report. Therefore, method reporting limits (RLs) were not assessed against any MCP standards as it may pertain to Question "E" on the Presumptive Certainty Certification Form (MADEP reference: WSC-CAM-AN-093008 - WSC-CAM Analytical Notes).

DISSOLVED METALS

Samples 360-22595-1 through 360-22595-3 were analyzed for dissolved metals in accordance with EPA SW846 Method 6010B. The samples were analyzed on 05/18/2009.

All QA/QC procedures required to meet Presumptive Certainty for the specified analytical method were performed as per section B of the MADEP MCP analytical method report Certification form.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

General method information:
At the request of the client, an abbreviated/modified MCP analyte list was reported for this job.

The following reported methods are not listed in the MADEP Massachusetts Contingency Plan (MCP) Compendium of Analytical Methods (CAM), pursuant to the provisions of 310 CMR 40.0017(2).

ANIONS

Samples 360-22595-1 through 360-22595-3 were analyzed for anions in accordance with EPA Method 300.0. The samples were analyzed on 05/14/2009 and 05/15/2009.

All QC performance standards and recommendations for this specific method were achieved.

Samples 360-22595-1(10X), 360-22595-2(20X) and 360-22595-3(10X) required dilution prior to analysis. The reporting limits have been adjusted accordingly. Dilutions were due to high target concentration.

AMMONIA

Samples 360-22595-1 through 360-22595-3 were analyzed for ammonia in accordance with LACHAT 107-06-1B. The samples were prepared and analyzed on 05/22/2009 and 05/28/2009.

All QC performance standards and recommendations for this specific method were achieved.

Sample 360-22595-2(10X) required dilution prior to analysis. The reporting limits have been adjusted accordingly. Dilution was due to high concentration.

SPECIFIC CONDUCTANCE (CONDUCTIVITY)

Samples 360-22595-1 through 360-22595-3 were analyzed for Specific Conductance (Conductivity) in accordance with SM 2510B. The samples were analyzed on 05/18/2009.

All QC performance standards and recommendations for this specific method were achieved.

This case narrative is available in Word format upon request.

EXECUTIVE SUMMARY - Detections

Client: Olin Corporation

Job Number: 360-22595-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
360-22595-1	**OC-GW-42S**					
Sulfate		8.0		2.0	mg/L	300.0
Chloride		67		10	mg/L	300.0
Ammonia		0.37		0.10	mg/L	L107-06-1B
Specific Conductance		310		1.0	umhos/cm	SM 2510B
Dissolved						
Aluminum		510		100	ug/L	6010B
Chromium		12		5.0	ug/L	6010B
360-22595-2	**OC-GW-201S**					
Sulfate		1300		40	mg/L	300.0
Chloride		24		1.0	mg/L	300.0
Ammonia		72		1.0	mg/L	L107-06-1B
Specific Conductance		2500		1.0	umhos/cm	SM 2510B
Dissolved						
Chromium		14		5.0	ug/L	6010B
360-22595-3	**OC-GW-35S**					
Sulfate		400		20	mg/L	300.0
Chloride		6.6		1.0	mg/L	300.0
Ammonia		19		0.10	mg/L	L107-06-1B
Specific Conductance		1000		1.0	umhos/cm	SM 2510B
Dissolved						
Aluminum		25	J	100	ug/L	6010B
Chromium		16		5.0	ug/L	6010B

METHOD SUMMARY

Client: Olin Corporation Job Number: 360-22595-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Dissolved Metals	TAL WFD	SW846 6010B	
Sample Filtration, Field	TAL WFD		FIELD_FLTRD
Chloride & Sulfate	TAL WFD	40CFR136A 300.0	
Nitrogen Ammonia	TAL WFD	LACHAT L107-06-1B	
Distillation, Ammonia	TAL WFD		Distill/Ammonia
Conductivity, Specific Conductance	TAL WFD	SM SM 2510B	

Lab References:

TAL WFD = TestAmerica Westfield

Method References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

LACHAT = LACHAT

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Olin Corporation

Job Number: 360-22595-1

Method	Analyst	Analyst ID
SW846 6010B	Nasiatka, Ellen M	EMN
40CFR136A 300.0	Lalashius, Andrew L	ALL
LACHAT L107-06-1B	Lalashius, Andrew L	ALL
SM SM 2510B	Emerich, Rich W	RWE

SAMPLE SUMMARY

Client: Olin Corporation

Job Number: 360-22595-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
360-22595-1	OC-GW-42S	Water	05/11/2009 1515	05/13/2009 0930
360-22595-2	OC-GW-201S	Water	05/12/2009 0950	05/13/2009 0930
360-22595-3	OC-GW-35S	Water	05/12/2009 1150	05/13/2009 0930

SAMPLE RESULTS

Mr. Steven Morrow
Olin Corporation
3855 North Ocoee Street
Suite 200
Cleveland, TN 37312-4441

Job Number: 360-22595-1

Client Sample ID: **OC-GW-42S**
Lab Sample ID: **360-22595-1**

Date Sampled: 05/11/2009 1515
Date Received: 05/13/2009 0930
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Method: Dissolved-6010B		Date Analyzed:	05/18/2009 1152		
Aluminum	510	ug/L	2.2	100	1.0
Chromium	12	ug/L	0.17	5.0	1.0

Mr. Steven Morrow
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3855 North Ocoee Street
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Cleveland, TN 37312-4441

Job Number: 360-22595-1

Client Sample ID: **OC-GW-42S**
Lab Sample ID: **360-22595-1**

Date Sampled: 05/11/2009 1515
Date Received: 05/13/2009 0930
Client Matrix: Water

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: 300.0		Date Analyzed:		05/14/2009 2053	
Sulfate	8.0	mg/L	2.0	2.0	1.0
Method: 300.0		Date Analyzed:		05/14/2009 2108	
Chloride	67	mg/L	10	10	10
Method: L107-06-1B		Date Analyzed:		05/22/2009 1349	
Prep Method: Distill/Ammonia		Date Prepared:		05/22/2009 0850	
Ammonia	0.37	mg/L	0.10	0.10	1.0
Method: SM 2510B		Date Analyzed:		05/18/2009 1105	
Specific Conductance	310	umhos/cm	1.0	1.0	1.0

Mr. Steven Morrow
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Job Number: 360-22595-1

Client Sample ID: **OC-GW-201S**
Lab Sample ID: **360-22595-2**

Date Sampled: 05/12/2009 0950
Date Received: 05/13/2009 0930
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Method: Dissolved-6010B		Date Analyzed:	05/18/2009 1210		
Aluminum	ND	ug/L	2.2	100	1.0
Chromium	14	ug/L	0.17	5.0	1.0

Mr. Steven Morrow
Olin Corporation
3855 North Ocoee Street
Suite 200
Cleveland, TN 37312-4441

Job Number: 360-22595-1

Client Sample ID: **OC-GW-201S**
Lab Sample ID: **360-22595-2**

Date Sampled: 05/12/2009 0950
Date Received: 05/13/2009 0930
Client Matrix: Water

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: 300.0		Date Analyzed:		05/14/2009 2223	
Chloride	24	mg/L	1.0	1.0	1.0
Method: 300.0		Date Analyzed:		05/15/2009 1942	
Sulfate	1300	mg/L	40	40	20
Method: L107-06-1B		Date Analyzed:		05/22/2009 1408	
Prep Method: Distill/Ammonia		Date Prepared:		05/22/2009 0850	
Ammonia	72	mg/L	1.0	1.0	10
Method: SM 2510B		Date Analyzed:		05/18/2009 1108	
Specific Conductance	2500	umhos/cm	1.0	1.0	1.0

Mr. Steven Morrow
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Job Number: 360-22595-1

Client Sample ID: **OC-GW-35S**
Lab Sample ID: **360-22595-3**

Date Sampled: 05/12/2009 1150
Date Received: 05/13/2009 0930
Client Matrix: Water

Analyte	Result/Qualifier		Unit	MDL	RL	Dilution
Method: Dissolved-6010B			Date Analyzed:		05/18/2009 1213	
Aluminum	25	J	ug/L	2.2	100	1.0
Chromium	16		ug/L	0.17	5.0	1.0

Mr. Steven Morrow
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3855 North Ocoee Street
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Cleveland, TN 37312-4441

Job Number: 360-22595-1

Client Sample ID: **OC-GW-35S**
Lab Sample ID: **360-22595-3**

Date Sampled: 05/12/2009 1150
Date Received: 05/13/2009 0930
Client Matrix: Water

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: 300.0		Date Analyzed:	05/14/2009 2324		
Chloride	6.6	mg/L	1.0	1.0	1.0
Method: 300.0		Date Analyzed:	05/14/2009 2339		
Sulfate	400	mg/L	20	20	10
Method: L107-06-1B		Date Analyzed:	05/28/2009 1413		
Prep Method: Distill/Ammonia		Date Prepared:	05/28/2009 1110		
Ammonia	19	mg/L	0.10	0.10	1.0
Method: SM 2510B		Date Analyzed:	05/18/2009 1109		
Specific Conductance	1000	umhos/cm	1.0	1.0	1.0

DATA REPORTING QUALIFIERS

Client: Olin Corporation Job Number: 360-22595-1

Lab Section	Qualifier	Description
Metals		
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

QUALITY CONTROL RESULTS

Client: Olin Corporation

Job Number: 360-22595-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Analysis Batch:360-44553					
LCS 360-44553/13	Lab Control Sample	T	Water	6010B	
LCSD 360-44553/25	Lab Control Sample Duplicate	T	Water	6010B	
MB 360-44553/14	Method Blank	T	Water	6010B	
360-22595-1	OC-GW-42S	D	Water	6010B	
360-22595-1DU	Duplicate	D	Water	6010B	
360-22595-1MS	Matrix Spike	D	Water	6010B	
360-22595-2	OC-GW-201S	D	Water	6010B	
360-22595-3	OC-GW-35S	D	Water	6010B	

Report Basis

D = Dissolved

T = Total

Client: Olin Corporation Job Number: 360-22595-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:360-44534					
LCS 360-44534/2	Lab Control Sample	T	Water	300.0	
MB 360-44534/1	Method Blank	T	Water	300.0	
360-22595-1	OC-GW-42S	T	Water	300.0	
Analysis Batch:360-44535					
LCS 360-44535/2	Lab Control Sample	T	Water	300.0	
MB 360-44535/1	Method Blank	T	Water	300.0	
360-22595-2	OC-GW-201S	T	Water	300.0	
360-22595-2MS	Matrix Spike	T	Water	300.0	
360-22595-2MSD	Matrix Spike Duplicate	T	Water	300.0	
360-22595-3	OC-GW-35S	T	Water	300.0	
Analysis Batch:360-44537					
LCS 360-44537/2	Lab Control Sample	T	Water	300.0	
MB 360-44537/1	Method Blank	T	Water	300.0	
360-22595-2	OC-GW-201S	T	Water	300.0	
Analysis Batch:360-44548					
LCS 360-44548/1	Lab Control Sample	T	Water	SM 2510B	
MB 360-44548/2	Method Blank	T	Water	SM 2510B	
360-22595-1	OC-GW-42S	T	Water	SM 2510B	
360-22595-1DU	Duplicate	T	Water	SM 2510B	
360-22595-2	OC-GW-201S	T	Water	SM 2510B	
360-22595-3	OC-GW-35S	T	Water	SM 2510B	
Prep Batch: 360-44728					
LCS 360-44728/2-A	Lab Control Sample	T	Water	Distill/Ammonia	
MB 360-44728/1-A	Method Blank	T	Water	Distill/Ammonia	
360-22595-1	OC-GW-42S	T	Water	Distill/Ammonia	
360-22595-2	OC-GW-201S	T	Water	Distill/Ammonia	
Analysis Batch:360-44744					
LCS 360-44728/2-A	Lab Control Sample	T	Water	L107-06-1B	360-44728
MB 360-44728/1-A	Method Blank	T	Water	L107-06-1B	360-44728
360-22595-1	OC-GW-42S	T	Water	L107-06-1B	360-44728
360-22595-2	OC-GW-201S	T	Water	L107-06-1B	360-44728
Prep Batch: 360-44909					
LCS 360-44909/2-A	Lab Control Sample	T	Water	Distill/Ammonia	
MB 360-44909/1-A	Method Blank	T	Water	Distill/Ammonia	
360-22595-3	OC-GW-35S	T	Water	Distill/Ammonia	

Client: Olin Corporation Job Number: 360-22595-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:360-44916					
LCS 360-44909/2-A	Lab Control Sample	T	Water	L107-06-1B	360-44909
MB 360-44909/1-A	Method Blank	T	Water	L107-06-1B	360-44909
360-22595-3	OC-GW-35S	T	Water	L107-06-1B	360-44909

Report Basis
T = Total

Client: Olin Corporation

Job Number: 360-22595-1

Method Blank - Batch: 360-44553

Method: 6010B
Preparation: N/A

Lab Sample ID: MB 360-44553/14
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/18/2009 1054
Date Prepared: N/A

Analysis Batch: 360-44553
Prep Batch: N/A
Units: ug/L

Instrument ID: Varian 720 ES ICP
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 1.0 mL

Analyte	Result	Qual	MDL	RL
Aluminum	ND		2.2	100
Chromium	ND		0.17	5.0

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 360-44553

Method: 6010B
Preparation: N/A

LCS Lab Sample ID: LCS 360-44553/13
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/18/2009 1051
Date Prepared: N/A

Analysis Batch: 360-44553
Prep Batch: N/A
Units: ug/L

Instrument ID: Varian 720 ES ICP
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 360-44553/25
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/18/2009 1155
Date Prepared: N/A

Analysis Batch: 360-44553
Prep Batch: N/A
Units: ug/L

Instrument ID: Varian 720 ES ICP
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 10 mL

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Aluminum	100	100	80 - 120	0	20		
Chromium	100	99	80 - 120	0	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Olin Corporation

Job Number: 360-22595-1

Matrix Spike - Batch: 360-44553

Method: 6010B
Preparation: N/A

Lab Sample ID: 360-22595-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/18/2009 1204
Date Prepared: N/A

Analysis Batch: 360-44553
Prep Batch: N/A
Units: ug/L

Instrument ID: Varian 720 ES ICP
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 10 mL

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	510	5000	5510	100	75 - 125	
Chromium	12	1000	996	98	75 - 125	

Duplicate - Batch: 360-44553

Method: 6010B
Preparation: N/A

Lab Sample ID: 360-22595-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/18/2009 1201
Date Prepared: N/A

Analysis Batch: 360-44553
Prep Batch: N/A
Units: ug/L

Instrument ID: Varian 720 ES ICP
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 1.0 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Aluminum	510	515	0	20	
Chromium	12	11.6	0	20	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Olin Corporation

Job Number: 360-22595-1

Method Blank - Batch: 360-44534

Method: 300.0
Preparation: N/A

Lab Sample ID: MB 360-44534/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/14/2009 1520
Date Prepared: N/A

Analysis Batch: 360-44534
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 1.0 mL

Analyte	Result	Qual	RL	RL
Sulfate	ND		2.0	2.0
Chloride	ND		1.0	1.0

Lab Control Sample - Batch: 360-44534

Method: 300.0
Preparation: N/A

Lab Sample ID: LCS 360-44534/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/14/2009 1536
Date Prepared: N/A

Analysis Batch: 360-44534
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 1.0 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Sulfate	80.0	81.6	102	85 - 115	
Chloride	40.0	40.6	102	85 - 115	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Olin Corporation

Job Number: 360-22595-1

Method Blank - Batch: 360-44535

Method: 300.0
Preparation: N/A

Lab Sample ID: MB 360-44535/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/14/2009 2153
Date Prepared: N/A

Analysis Batch: 360-44535
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 1.0 mL

Analyte	Result	Qual	RL	RL
Sulfate	ND		2.0	2.0
Chloride	ND		1.0	1.0

Lab Control Sample - Batch: 360-44535

Method: 300.0
Preparation: N/A

Lab Sample ID: LCS 360-44535/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/14/2009 2208
Date Prepared: N/A

Analysis Batch: 360-44535
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 1.0 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Sulfate	80.0	81.7	102	85 - 115	
Chloride	40.0	40.9	102	85 - 115	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Olin Corporation

Job Number: 360-22595-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 360-44535

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	360-22595-2	Analysis Batch:	360-44535	Instrument ID:	No Equipment Assigned
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	10			Initial Weight/Volume:	1.0 mL
Date Analyzed:	05/14/2009 2254			Final Weight/Volume:	10 mL
Date Prepared:	N/A				

MSD Lab Sample ID:	360-22595-2	Analysis Batch:	360-44535	Instrument ID:	No Equipment Assigned
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	10			Initial Weight/Volume:	1.0 mL
Date Analyzed:	05/14/2009 2309			Final Weight/Volume:	10 mL
Date Prepared:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chloride	105	105	75 - 125	0	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Olin Corporation

Job Number: 360-22595-1

Method Blank - Batch: 360-44537

Method: 300.0
Preparation: N/A

Lab Sample ID: MB 360-44537/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/15/2009 1811
Date Prepared: N/A

Analysis Batch: 360-44537
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 1.0 mL

Analyte	Result	Qual	RL	RL
Sulfate	ND		2.0	2.0
Chloride	ND		1.0	1.0

Lab Control Sample - Batch: 360-44537

Method: 300.0
Preparation: N/A

Lab Sample ID: LCS 360-44537/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/15/2009 1826
Date Prepared: N/A

Analysis Batch: 360-44537
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 1.0 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Sulfate	80.0	82.1	103	85 - 115	
Chloride	40.0	41.0	103	85 - 115	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Olin Corporation

Job Number: 360-22595-1

Method Blank - Batch: 360-44728

Method: L107-06-1B
Preparation: Distill/Ammonia

Lab Sample ID: MB 360-44728/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/22/2009 1345
Date Prepared: 05/22/2009 0850

Analysis Batch: 360-44744
Prep Batch: 360-44728
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL	RL
Ammonia	ND		0.10	0.10

Lab Control Sample - Batch: 360-44728

Method: L107-06-1B
Preparation: Distill/Ammonia

Lab Sample ID: LCS 360-44728/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/22/2009 1346
Date Prepared: 05/22/2009 0850

Analysis Batch: 360-44744
Prep Batch: 360-44728
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Ammonia	10.0	9.36	94	85 - 115	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Method Blank - Batch: 360-44909

Method: L107-06-1B
Preparation: Distill/Ammonia

Lab Sample ID: MB 360-44909/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/28/2009 1408
Date Prepared: 05/28/2009 1110

Analysis Batch: 360-44916
Prep Batch: 360-44909
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL	RL
Ammonia	ND		0.10	0.10

Lab Control Sample - Batch: 360-44909

Method: L107-06-1B
Preparation: Distill/Ammonia

Lab Sample ID: LCS 360-44909/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/28/2009 1409
Date Prepared: 05/28/2009 1110

Analysis Batch: 360-44916
Prep Batch: 360-44909
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Ammonia	10.0	9.71	97	85 - 115	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Method Blank - Batch: 360-44548

Method: SM 2510B
Preparation: N/A

Lab Sample ID: MB 360-44548/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/18/2009 1103
Date Prepared: N/A

Analysis Batch: 360-44548
Prep Batch: N/A
Units: umhos/cm

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 1.0 mL

Analyte	Result	Qual	RL	RL
Specific Conductance	ND		1.0	1.0

Lab Control Sample - Batch: 360-44548

Method: SM 2510B
Preparation: N/A

Lab Sample ID: LCS 360-44548/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/18/2009 1101
Date Prepared: N/A

Analysis Batch: 360-44548
Prep Batch: N/A
Units: umhos/cm

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 1.0 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Specific Conductance	1410	1420	101	85 - 115	

Duplicate - Batch: 360-44548

Method: SM 2510B
Preparation: N/A

Lab Sample ID: 360-22595-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 05/18/2009 1106
Date Prepared: N/A

Analysis Batch: 360-44548
Prep Batch: N/A
Units: umhos/cm

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 1.0 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Specific Conductance	310	307	0	20	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Method Name	Description	State Accreditation				
		New York (NELAC)	Mass	Conn	Florida (NELAC)	North Carolina
821-R-02-012	Toxicity, Acute (48-Hour)(list upon request)				NP	
SM 4500 Cl F	Chlorine, Residual		NP			
SM 9215B	Heterotrophic Plate Count (Pour Plate Method)		P			
SM 9215E	Heterotrophic Plate Count (SimPlate)		P			
SM 9221F	E.Coli (Multiple-Tube Fermentation; EC-MUG)		P			
SM 9222B	Coliforms, Total (Membrane Filter)		P			
SM 9222D	Coliforms, Fecal (Membrane Filter)		P/NP			
SM 9223	Coliforms, Total, and E.Coli (Colilert-P/A)		P			
200.8	Metals (ICP/MS) (list upon request)	NP/P	NP/P	NP/P		
200.7 Rev 4.4	Metals (ICP)(list upon request)	NP/P	NP/P	NP/P		
6010B	Metals (ICP)(list upon request)	NP/SW		NP/SW		
245.1	Mercury (CVAA)	NP/P	NP	NP/P		
7470A	Mercury (CVAA)	NP		NP		
7471A	Mercury (CVAA)	SW		SW		
SM 2340B	Total Hardness (as CaCO3) by calculation	NP/P	NP	NP/P		
3005A	Preparation, Total Recoverable or Dissolved Metals	NP/P		NP/P		
3010A	Preparation, Total Metals	NP/P		NP/P		
3020A	Preparation, Total Metals	NP/P/SW		NP/P/SW		
3050B	Preparation, Metals	SW		SW		
504.1	EDB, DBCP and 1,2,3-TCP (GC)		P	P		
608	Organochlorine Pest/PCBs (list upon request)	NP	NP	NP		
625	Semivolatile Org Comp (GC/MS)(list upon request)	NP		NP		
3546	Microwave Extraction	SW				
3510C	Liquid-Liquid Extraction (Separatory Funnel)	NP		NP		
3540C	Soxhlet Extraction					
3550B	Ultrasonic Extraction	SW		SW		
600/4-81-045	Polychlorinated Biphenyls (PCBs) (GC)		NP	NP		
8081A	Organochlorine Pesticides (GC)(list upon request)	NP/SW		NP/SW		
8082A	PCBs by Gas Chromatography(list upon request)	NP/SW		NP/SW		
8270C	Semivolatile Comp.(GC/MS)(list upon request)	NP/SW		NP/SW		
CT ETPH	Conn - Ext. Total petroleum Hydrocarbons (GC)			NP/SW		
MA-EPH	Mass - Extractable Petroleum Hydrocarbons (GC)			NP/SW		NP/SW
524.2	Volatile Org Comp (GC/MS)(list upon request)	P	P	P		
524.2	Trihalomethanes		P	P		
624	Volatile Org Comp (GC/MS)(list upon request)	NP	NP	NP		
5035	Closed System Purge and Trap	SW		SW		
5030B	Purge and Trap	NP		NP		
8260B	Volatile Org Comp. (GC/MS)(list upon request)	NP/SW		NP/SW		
MAVPH	Mass - Volatile Petroleum Hydrocarbons (GC)			NP/SW		NP/SW
180.1	Turbidity, Nephelometric		P	P		
300	Anions, Ion Chromatography	NP/P	NP/P	NP/P		
410.4	COD	NP	NP	NP		
1010	Ignitability, Pensky-Martens Closed-Cup Method	SW		SW		
10-107-06-2	Nitrogen, Total Kjeldahl	NP	NP	NP		
7196A	Chromium, Hexavalent	NP/SW		NP/SW		
9012A	Cyanide, Total and/or Amenable	NP/SW		NP/SW		
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	NP		NP		
9040B	pH	NP		NP		
9045C	pH	SW		SW		
L107041C	Nitrogen, Nitrate	NP	P	NP/P		
L107-06-1B	Nitrogen Ammonia	NP	NP	NP/P		
L204001A CN	Cyanide, Total		NP/P	NP/P		
L210-001A	Phenolics, Total Recoverable	NP	NP	NP		
SM 2320B	Alkalinity	NP/P	NP/P	NP/P		
SM 2510B	Conductivity, Specific Conductance	NP/P	NP/P	NP/P		
SM 2540C	Solids, Total Dissolved (TDS)	NP/P	NP/P	NP/P		
SM 2540D	Solids, Total Suspended (TSS)	NP	NP	NP		
SM 3500 CR D	Chromium, Hexavalent	NP		NP		
SM 4500 H+ B	pH	NP/P	NP/P	NP/P		
SM 4500 NO2 B	Nitrogen, Nitrite	NP	P	NP/P		
SM 4500 P E	Phosphorus, Orthophosphate	NP/P	NP	NP/P		
SM 4500 P E	Phosphorus, Total	NP	NP	NP		
SM 4500 S2 D	Sulfide, Total	NP		NP		
SM 5210B	BOD, 5-Day	NP	NP	NP		
SM 5310B	Organic Carbon, Total (TOC)	NP/P	NP	NP/P		

Not all organic compounds are accreditied under NELAC
For methods with multiple compounds all compounds may not meet NELAC criteria, listing should be obtained from the laboratory
This listing is subject to change based on the laboratories certification standing.

NP=Non Potable
P=Potable
SW=Solid Waste

Login Sample Receipt Check List

Client: Olin Corporation

Job Number: 360-22595-1

Login Number: 22595

List Source: TestAmerica Westfield

Creator: McDonald, Jerry

List Number: 1

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	1.4C
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

TestAmerica Laboratories, Inc.
Chain of Custody Form

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

360-22595

•53 Southampton Road
Westfield, MA 01085
(P) 413-572-4000
(F) 413-572-3707

•149 Rangeway Road
N. Billerica, MA 01862
(P) 978-667-1400
(F) 978-667-7871

Client: Olin Chemical/MACTEC
Address: 51 Eames Street
Wilmington, MA 01887
Phone: Fax:

Project #: 6107090016
Project Manager: Peter Thompson
Work ID: ~~PCMP~~ Slurry Wall Cap
Contact: David Chapman

Job# | Quote# | PO#

Requested Turn Around Time
10 Business Day (Std) XX | Rush TAT Requested:
15 Business Day | 24 hrs | 72 hrs
Other | 48 hrs | 5 Day

Regulatory Classification / Special Report Format
NPDES | Drinking Water | DEP Form(s)
RCRA | MCP GW1/S1 | MWRA Smart Rpt
Other | MCP QA/QC Rpt XX

Shaded areas for office use

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments
(Special Instructions)

MCP case narrative

Sample Type Codes
WW-Wastewater DW-Drinking water SW-Surfacewater
LW-Labwater GW-Groundwater A-Air
S-Solid / Soil SL-Sludge O-Oil Z-Other

Sample ID	Sample Type	Sampler's Initials	Date Time Collected	Grab	Comp.	# Containers	Plastic(P) or Glass(G)	Preservative: NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	NAOH/ZNAC	None / 4° C	Ammonia-Nitrogen	Chloride, Sulfate	Specific Conductivity	Nitrate, Nitrite	Groundwater metals	Surfacewater metals	Sediment: Al/Cr/Fe	Other	Other	Other	Other	Other	Other
OC-GW-42S	GW	DLC MAM	5-11-09 15:15	X		3	P		1	1				1	X	X	X		X							
OC-GW-201S	GW	DLC MAM	5-12-09 9:50	X		3	P		1	1				1	X	X	X		X							
OC-GW-35S	GW	DLC MAM	5-12-09 11:50	X		3	P		1	1				1	X	X	X		X							
					JM																					

Dissolved metals are field filtered.

Groundwater Metals: Dissolved Al/Cr

Surfacewater Metals: Dissolved/Total Al/Cr/Na

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Sampled by (print): David Chapman / Mark Maggiore
Signature:

Relinquished by: David Chapman Date: 5-12-09 Time: 15:00
Received by: Date: 5.12.09 Time: 15:00

Relinquished by: FED EX Date: Time:
Received by: Date: 5/13/09 Time: 0930

Method of shipment:

TestAmerica-Westfield

Cooler? Y / N Samples Iced? Y / N
Temp @ receipt: 1.4 °C
Preservation/pH checked
By: JT Date: 5/13/09

White = Lab file Yellow = Report copy Pink = Customer copy
STL-8245 (1000)